

**Complimentary coronary artery assessment in Kawasaki Disease with low-dose CT angiography, uncovering vascular pathology missed by echocardiography.**

*van Stijn - Bringas Dimitriades D.(1), Planken R.N. (2), Groenink M.(3), Kuijpers T.W.\* (1), Kuipers I.M. (4)\**

*Department of pediatric hematology, immunology and infectious diseases, Emma Childrens Hospital, Academic Medical Centre (AMC), Amsterdam, The Netherlands (1).*

*Department of radiology (cardiovascular imaging, ultrasound, CT, MR), Academic Medical Centre (AMC), Amsterdam, The Netherlands (2).*

*Department of cardiology, Academic Medical Centre (AMC), Amsterdam, The Netherlands (3).*

*Department of pediatric cardiology, Emma Childrens Hospital, Academic Medical Centre (AMC), Amsterdam, The Netherlands (4).*

*\* both authors attributed equally*

**Introduction**—Kawasaki Disease (KD) is a vasculitis with formation of coronary artery aneurysms (CAAs) that can lead to myocardial ischemia. To initiate treatment and prevent myocardial infarction, coronary artery assessment is essential. Echocardiography is the primary imaging modality used for coronary assessment in KD despite limited diagnostic accuracy. Coronary angiography (CAG), the gold standard for coronary assessment, is not used as a primary imaging modality due to invasiveness and radiation exposure. Similarly coronary computed tomographic angiography (cCTA) has not been implemented because of high radiation dose. However, state-of-the-art CT-scanners enable low-dose cCTA. The aim of this study was to describe the (I) diagnostic yield of cCTA compared to echocardiography, and (II) to report the radiation dose for the imaging used in KD patients.

**Methods**—During the past 8 years KD patients underwent cCTA. Low-dose cCTA was available from 2014 (n=55). Concordant and discordant cCTA and echocardiography findings were compared.

**Results**—In 70 consecutive KD patients (median age 15.1 yrs [0.48-59.45 yrs]; 78% male; 38% giant CAA in acute KD) a total of 76 CAAs were identified by cCTA in 35 patients. cCTA identified 38 CAAs (Z score>3) in 23 patients, not detected by recent echocardiography. In 25 coronary arteries in 15 patients calcifications, plaques and/or thrombi were visualized, undetectable by echocardiography. In 5 patients, the cCTA findings had direct clinical implications for their treatment. The median radiation in dose-length-product (DLP) differed between state-of-the-art and older generation CT-scanners (73 [24-283] vs 315 [99-1380]).

**Conclusions**—Low-dose cCTA enables accurate coronary artery assessment. cCTA is an excellent modality to reveal coronary artery pathology in addition to the echocardiography findings in KD.